ABSTRACT

The present invention discloses novel and improved nucleosidic and nucleotidic compounds that are useful in the light-directed synthesis of oligonucleotides, as well as, methods and reagents for their preparation. These compounds are characterized by novel photolabile protective groups that are attached to either the 5'- or the 3'- hydroxyl group of a nucleoside moiety. The photolabile protective group is comprised of a 2-(2-nitrophenyl)-ethyoxycarbonyl skeleton with at least one substituent on the aromatic ring that is either an aryl, an aroyl, a heteroaryl or an alkoxycarbonyl group. The present invention includes the use of the aforementioned compounds in light-directed oligonucleotide synthesis, the respective assembly of nucleic acid microarrays and their application.